UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
BIN C15700
Seattle, WA 98115-0070

July 3, 2002

Mr. Michael Kulbacki
Federal Highway Administration
711 Capitol Way South, 5th Floor
Olympia, Washington 98501-1284

Re: Biological Opinion for Widening and Reconstruction of South 96th Ave from Tieton Drive to Zier Road, Yakima County, WA (NMFS No. WSB-01-391).

Dear Mr. Kulbacki:

In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended, 16 U.S.C. 1531, *et seq*. and the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996, the attached document transmits the National Marine Fisheries Service's (NMFS) Biological Opinion (BO) and MSA consultation on construction activities necessary for widening and reconstruction of South 96th Avenue from Tieton Drive to Zier Road. Construction elements of the subject line project will occur in Wide Hollow Creek, a tributary to the Yakima River near the city of Yakima, in Yakima County, Washington. The Federal Highway Administration determined that the proposed action was likely to adversely affect existing habitat for the Middle Columbia River steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit (ESU), and requested formal consultation. NMFS concurred with this determination, and initiated formal consultation.

This BO reflects the results of a formal ESA consultation and contains an analysis of effects covering the Middle Columbia River steelhead in the Yakima River, Washington. The BO is based on information provided in the Biological Assessment (BA) and its subsequent addenda sent to NMFS by Yakima County Public Works Department, a site visit, and additional information transmitted via telephone conversations and e-mail. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office.

The NMFS concludes that implementation of the proposed project is not likely to jeopardize the continued existence of Middle Columbia River steelhead or result in destruction or adverse modification of their Critical Habitat. In your review, please note that the incidental take statement, which includes Reasonable and Prudent Measures and Terms and Conditions, was designed to minimize take.

The MSA consultation concluded that the proposed project may adversely impact designated Essential Fish Habitat (EFH) for chinook (*O. tshawytscha*) and coho (*O. kisutch*) salmon. The Reasonable and Prudent Measures of the ESA consultation, and Terms and Conditions identified therein, would address the negative effects resulting from the proposed FHWA actions. Therefore, NMFS recommends that they be adopted as EFH conservation measures.

The attached biological opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this opinion, however, a federal court vacated the rule designating critical habitat for the ESUs considered in this opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need to timely issue this opinion, our critical habitat analysis has not been removed from this opinion.

If you have any questions, please contact Diane Driscoll of the Washington Habitat Branch, Ellensburg Field Office at (509) 962-8911 Extension 227.

Sincerely,

For Michael R Course

D. Robert Lohn
Regional Administrator

Enclosure

cc: Brian Hasselbach, WSDOT
Roger Arms, WSDOT
Mark Brzoska, Yakima County PWD

Endangered Species Act - Section 7 Consultation

Biological Opinion

And

Magnuson-Stevens Fishery Conservation and Management Act

Widening and Reconstruction of South 96th Avenue
from Tieton Drive to Zier Road (C2653),
Yakima County, Washington
WSB-01-391

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Issued by: F.r Michael R Course
D. Robert Lohn
Regional Administrator

Date: July 3, 2002

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1.0 INTRODUCTION

This document transmits the National Marine Fisheries Service's (NMFS) Biological Opinion (Opinion) and Essential Fish Habitat (EFH) consultation based on our review of a project to widen and reconstruct South 96th Avenue from Tieton Drive to Zier Road. The proposal includes the construction of a new bridge over Wide Hollow Creek which is a tributary to the Yakima River and is located in the Middle-Columbia River (MCR) evolutionary significant unit (ESU) for steelhead (*Oncorhynchus mykiss*). Wide Hollow Creek is also essential fish habitat for chinook (*O. tshawytscha*) and coho (*O. kitsutch*)

1.1 Background and Consultation History

On September 4, 2001, the NMFS received a Biological Assessment (BA) and a request for Endangered Species Act (ESA) section 7 informal consultation from the Federal Highways Administration for the widening and reconstruction of South 96th Avenue from Tieton Drive to Zier Road (C2653). Proposed activities also include construction of a new 56-foot span bridge over Wide Hollow Creek . The Federal Highway Administration (FHWA) concluded that the project proposed by the lead agency, Yakima County Public Works Department (YCPWD) "may affect, but is not likely to adversely affect" the MCR steelhead ESU and will not result in the adverse modification or destruction of the species designated critical habitat. After review of the proposed project , the NMFS determined that the loss of approximately 85-90 feet of functional riparian habitat, including approximately 15 mature trees adjacent to Wide Hollow Creek and the temporary rerouting of a segment of Wide Hollow Creek result in an "adverse effect" to listed MCR steelhead. Accordingly, NMFS could not concur with NLAA effect determination and formal consultation was recommended.

The NMFS reviewed the following information and engaged in the following steps to reach its determination and prepare this Opinion:

1) September 4, 2001 receipt of letter and final BA from Washington Department of Transportation (WSDOT) requesting informal consultation.

2) January 25, 2002 phone call from NMFS to WSDOT identifying BA deficiencies and informing WSDOT of pending nonconcurrence letter.

3) February 11, 2002 nonconcurrence letter sent to WSDOT outlining BA deficiencies and recommending formal consultation.

4) March 14, 2002 site visit by WSDOT and NMFS biologists.

5) April 1, 2002 receipt of information requested in February 11, 2002 letter.

6) April 5, 2002 additional clarification of project actions requested from WSDOT by email.

7) April 15, 2002 receipt of request for formal consultation from FHWA received.

The objective of this document is to determine whether the proposed project is likely to jeopardize the continued existence of Middle Columbia River (MCR) steelhead, or result in the destruction or adverse modification of their critical habitat. The standards for determining jeopardy are described in section 7(a)(2) of the ESA and further defined in 50 C.F.R. 402.14. This document also presents NMFS' consultation covering Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

1.2 Description of the Proposed Action

The FHWA proposes to fund a construction project proposed by YCPW. The construction project includes a proposal to widen and reconstruct South 96th Avenue from Tieton Drive to Wide Hollow Road, construction of a new road from Wide Hollow Road south to Zier Road, and installation of a 56-foot span bridge over Wide Hollow Creek. The proposed activity will expand the existing paved road surface of South 96th Avenue from Tieton Drive to Wide Hollow Road to incorporate a 12-foot wide turn lane. Existing lanes will also be expanded to 12-feet, and 8-foot paved shoulders will be constructed on each side of the road primarily for the purpose of traffic and pedestrian safety. The existing road will then be extended south by the construction of a new two-lane road from Wide Hollow Road to Zier Road. The new road will mimic the existing road with 8-foot paved shoulders on the outside of each 12-foot lane. The new road section will require the construction of a 56-foot span bridge over Wide Hollow Creek. The bridge right-of-way will be approximately 85-feet wide, and will result in the loss of 85-90 bank feet of functional riparian habitat, including approximately 15 trees, adjacent to Wide Hollow Creek.

1.2.1 Diversion of stream and removal of fish

The project calls for diverting Wide Hollow Creek to bypass a portion of the project area during removal of the existing trees and construction of the bridge. The stream will be channeled through a pipe so that water does not flow along the stream banks. Sand bags will be placed at the upstream and downstream ends of the pipe to isolate the work area.

Prior to turning the stream into the bypass pipe, a net will be placed in the stream to block fish from the area to be dewatered. Assisted by Washington Department of Fish and Wildlife (WDFW) biologists, workers will use a seineing net held perpendicular to the stream, and move downstream to direct any fish downstream and out of the area to be dewatered. This procedure will be conducted until WDFW is satisfied that there are no fish remaining in the area that can be removed by seineing. As the work area is dewatered, any fish observed in the area will be captured using dipnets and transported to free-flowing water. Capture and transport of stranded fish will begin immediately after the stream is blocked off and last until all fish are removed. Fish rescues will be performed by a trained fish biologist and with the assistance of a WDFW fish biologist.

1.2.2 Road Construction and Stormwater Management

Yakima County proposes to place curbs and gutters with an enclosed drainage system to manage surface waters of Tieton Drive to Wide Hollow Creek. New drainage culverts will be placed under adjoining streets and driveways in this road section, and include rock-lined catchment basins.

The section of road widening from Tieton Drive to Wide Hollow Road is approximately 4,138 lineal feet. The project would create 117,810 square feet to 200,277 square feet (2.6 to 4.6 acres) of new impervious surface. Ten dry-wells will collect and infiltrate surface water for this 4,138 foot curbed and guttered section of the project. Each dry well will consist of perforated concrete pipe, drain rock, filter fabric, and a 12 inch pipe fitted into an infiltration trench (90-150 feet in length each) for additional storage capacity. The dry wells are designed to retain 100% of the total road runoff produced by 2-inches of precipitation over a 24-hour period (equivalent to a 50-year storm in this area).

The new section of road from Zier Road to Wide Hollow Road is approximately 2655 lineal feet. The total new impervious surface area of the new road of this section will be approximately 140,200 square feet (3.2 acres). Surface waters of the road section between Wide Hollow Creek and Zier Road will be managed by a swale system installed on each side of the road, and will include rock check dams every 25-50 lineal feet to serve as the surface water filtration and retention mechanism. The retention pond at the base of the bridge will collect all storm water from the bridge, and all water coming down the hill not contained in the swales achieving 100% infiltration for a 50 year event. Hydroseeding of the swales will result in vegetation to promote the filtering of pollutants and suspended solids where storm water is not infiltrated by dry-wells. Yakima County will install nylon reinforced straw fabric in the swale/pond area to provide protection of the exposed ground surface until seeding becomes established. A local ordinance precludes the mixing of storm water and irrigation water. Therefore, the Yakima Valley Canal will be crossed approximately 1,300 feet uphill from Wide Hollow Creek, and storm waters not retained in swales will be piped across the road rather than allowed to flow into the canal.

1.2.3 Removal and Planting of Vegetation

Approximately 5.5 acres of vegetation will be removed (plus removal of 15 trees for the bridge). More than 5 acres consists of lawn grass, grown by the adjacent sod-farm. Prior to removal of riparian vegetation Wide Hollow Creek will be piped. The trees to be removed are in two locations. One group is outside the active channel on the stream bank. The second group of trees lies within the active channel. The root systems of the trees along the stream bank extend into the bank and not into the stream channel. Therefore, tipping the root wads toward the flood plain will minimize channel disturbance. After removal of the root wads, the exposed silt bank will be protected with geotextile fabric and quarry spalls or river rock with a minimum of 10 inch diameter in a matrix of smaller material to mimic existing conditions. Removal of the trees within the active channel is anticipated to disturb an area approximately 12' x 4' x 4'. The total volume of disturbance is estimated at less than seven cubic yards. Dewatering the stream

channel prior to tree removal and capture and pumping of any seepage into an infiltration facility is expected to remove the majority of sediment generated by disturbance of the streambed. After project completion, this substrate will remain in a disturbed state, and a sediment pulse is likely to occur at the next high water event. Any negative effects of this sediment pulse are expected to be short term as the geotextile fabric and the quarry spalls or river rock will stabilize the stream banks. The County will import a minimum of three rootwads to be placed within the stream channel upstream of the new bridge. Wood placement will be such that scour pools and high water refugia.

Approximately 45-50 trees of a native riparian species will be planted in adjacent riparian areas (<30 ft. from the bankfull edge, both upstream and downstream of the bridge). The number of trees planted will exceed the number removed by at least 300% in order to account for mortality until maturity. This action will result in a net increase in the density of trees in the riparian area, reintroduce a native species, increase potential wood recruitment and improve riparian function.

All work for the bridge is outside the ordinary high water mark, with the exception of the rootwad placement operation. The rootwads will be placed into the thalwag of the stream from outside the stream banks with a shovel/backhoe. The specifics of implementation will follow the Hydraulic Permit approval (HPA) issued by the Washington Department of Fish and Wildlife.

1.3 Description of the Action Area

Under the ESA, the "Action Area" is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area of the action (50 C.F.R. § 402.02 and 402.14(h)(2)). For the purposes of this Opinion, the Action Area includes South 96th Avenue from Tieton Drive to Zier Road, including Wide Hollow Creek from just upstream of South 96th Avenue (approximately Rkm 13.7) downstream approximately 1.6 km toward the Yakima River. The precise downstream limit of the Action Area cannot be easily determined because the extent of the effects of the proposed action will vary according to flow stage. The Action Area also includes the adjacent riparian zone within the construction area and all areas affected by the project including the staging area and roadways.

2.0 ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Status of the Species and Critical Habitat

The listing status, biological information, and Critical Habitat elements or potential Critical Habitat for the NMFS listed species are described in Table 1.

Species (Biological Reference)	Listing Status Reference	Critical Habitat Reference
Steelhead from Washington, Idaho, Oregon and California, (Busby, *et al.* 1996).	The MCR ESU is listed as Threatened under the ESA by the NMFS, (64 Fed. Reg. 14517, March 25, 1999).	Critical Habitat for MCR ESU, (65 Fed. Reg. 7764, Feb. 16, 2000).

Table 1. References to Federal Register Notices containing additional information concerning listing status, biological information, and Critical Habitat designations for listed and proposed species considered in this biological opinion.

The proposed action will occur within the designated Critical Habitat of MCR steelhead. Essential features of this Critical Habitat include substrate, water quality/quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, and safe passage conditions (65 Fed. Reg.7764, February 16, 2000).

MCR steelhead have been negatively affected by a combination of habitat alteration and hatchery management practices. The four downstream, mainstem dams on the Columbia are a significant source of habitat degradation for this ESU. The dams act as a partial barrier to passage, kill out-migrating smolts in their turbines, raise temperatures throughout the river system, and have created lentic refugia for salmonid predators. In addition to the mainstem dams, nine major diversion dams control water flow in the Yakima Basin and provide irrigation to over 200,000 cultivated hectares (Hockersmith et al. 1995) Sunnyside Dam and Wapato Dam on the Yakima River below Wide Hollow Creek, also pose passage problems at low flows (Snyder and Stanford 2001). Typically Sunnyside and Wapato dams divert one half of the river flow during the irrigation season, from April to October, and much more than half during dry periods (Snyder and Stanford 2001). High temperatures in the lower sections of the subbasin, resulting from the cumulative effects of watershed-wide habitat degradation, have severed the connectivity of the chain of habitats linking the subbasin to the mainstem Columbia. Localized impacts include lack of upstream juvenile fish passage at the Union Gap fish ladder (Brzoska pers comm 2002), degraded water quality and habitat degradation because of urbanization and agricultural practices (Vaccaro 1986; Lichatowich and Mobrand 1995; Lichatowich et al. 1995; Pearsons et al. 1996; Lilga 1998 WDF et al. 1993; Busby et al. 1996; NMFS 1996; 63 Fed. Reg. 11798, March 10, 1998).

Habitat alterations and differential availability impose an upper limit on the production of naturally spawning populations of salmon. The National Research Council Committee on Protection and Management of Pacific Northwest Anadromous Salmonids identified habitat problems as a primary cause of declines in wild salmon runs (NRCC 1996). Some of the habitat impacts identified were the fragmentation and loss of available spawning and rearing habitat, migration delays, degradation of water quality, removal of riparian vegetation, decline of habitat complexity, alteration of streamflows and streambank and channel morphology, alteration of ambient stream water temperatures, sedimentation, and loss of spawning gravel, pool habitat and large woody debris (NMFS 1998, NRCC 1996).

MCR River steelhead population sizes are substantially lower than historic levels, and at least two extinctions are known to have occurred in the ESU. In larger rivers (John Day, Deschutes, and Yakima), steelhead abundance has been severely reduced. WDFW et al. (1993) estimated that the Yakima River had annual run sizes of 100,000 fish prior to the 1960's; more recently (early 1990's), a natural escapement has been about 1,200 fish.. Across the entire ESU, the wild fish escapement has averaged 39,000 and total escapement 142,000 (includes hatchery fish). The large proportion of hatchery fish, concurrent with the decline of wild fish, is a major risk to the MCR ESU (WDF et al. 1993; Busby et al. 1996; 63 Fed. Reg. 11798, March 10, 1998).

Within the Yakima River Basin, wild adult steelhead returns have averaged 1,357 fish (range 451 (1996) to 2,601 (1988)) over brood years 1985-2000 as monitored at Prosser Dam (River Mile (RM) 47.1; YSS 2001). Steelhead migrating into the Yakima river during fall and early winter will settle into winter holding areas with the majority of migrants over-wintering in the mainstem Yakima River between Prosser and Sunnyside dams (Hockersmith et al. 1995). Low flows at the mouth of the Yakima River below Roza Dam during the summer months lead to high water temperatures that are a barrier to passage of adult salmon. Steelhead spawning varies across temporal and spatial scales in the Yakima Basin as well, although the current spatial distribution is significantly decreased from historic conditions. Hockersmith (1995) identified the following spawning populations within the Yakima Basin: upper Yakima River above Ellensburg, Teanaway River, Swauk Creek, Taneum Creek, Roza Canyon, mainstem Yakima River between the Naches River and Roza Dam, Little Naches River, Bumping River, Naches River, Rattlesnake Creek, Toppenish Creek, Marion Drain, and Satus Creek. Typically, steelhead spawn earlier at lower, warmer elevations than higher elevations. Overall, most spawning is completed between January and May. Four genetically distinct spawning populations of wild steelhead have been identified in the Yakima basin, Satus Creek, Toppenish Creek, Naches River, and the Upper Yakima River above Roza Dam **(Phelps et al. 2000). Hockersmith et al. (1995) found that steelhead entered tributaries to spawn beginning in late January and continuing into May. Busack et al. (1991) analyzed scale samples from smolts and adult steelhead and found, generally, that smoltification occurs after two years in the Yakima system, with a few fish maturing after three years and an even smaller proportion reaching the smolt stage after one year. This means that listed steelhead could be in the action area at any time.**

Busby et al. (1996) computed population trends for 14 stocks in this ESU. Eight of these trends were significantly different from zero, with seven negative and one positive. However, estimates of total run size (based on dam counts) for this ESU show an overall increase in steelhead abundance, with a relative stable naturally produced component. The John Day River represents the largest native, natural spawning stock in the region. Past and present hatchery practices pose a major threat to genetic integrity of MCR steelhead.

2.1.1.1 Factors Affecting the Species at the Population Level

Section 4(a)(1) of the ESA and NMFS listing regulations (50 C.F.R. 424, *et. seq*.) set forth procedures for listing species. The Secretary of Commerce must determine, through the regulatory process, if a listed species is endangered or threatened based upon any one or a combination of the following factors; (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; or (5) other natural or human-made factors affecting its continued existence. The proposed action includes activities that would have some level of effects with the potential for long-term impacts from the first category.

For the MCR steelhead ESU as a whole, preliminary estimates by the Northwest Fisheries Science Center (NWFSC) that the median population growth rate (lambda) over the base period ranges from 0.88 to 0.75, decreasing as the effectiveness of hatchery fish spawning in the wild increases compared to that of fish of wild origin, (NWFSC 2000). NMFS has also estimated the risk of absolute extinction within the next 100 years for four of the spawning aggregations, using the same range of assumptions about the relative effectiveness of hatchery fish. At the low end, assuming that hatchery fish spawning in the wild have not reproduced (i.e., hatchery effectiveness = 0), the risk of absolute extinction within 100 years ranges from zero for the Yakima River summer run to 1.00 for the Umatilla River, Deschutes River and Warm Springs summer runs.

2.1.2 Evaluating the Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 C.F.R. 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements and current status of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and

recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the continued existence of the listed species, then NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat, it must identify any reasonable and prudent measures available.

Guidance for making determinations of jeopardy and adverse modification of habitat are contained in *The Habitat Approach, Implementation of Section 7 of the Endangered Species Act for Actions Affecting the Habitat of Pacific Anadromous Salmonids*, August 1999 (NMFS 1999).

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. The NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration and spawning of the listed salmon under the existing environmental baseline.

2.1.2.1 Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species; taking into account population size, trends, distribution, and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its original decision to list the species for protection under the ESA. Additionally, the assessment will consider any new information or data that are relevant to the determination.

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally reproducing population levels at which time protection under the ESA would be unnecessary. Species or ESUs not requiring ESA protection have the following attributes: population sizes large enough to maintain genetic diversity and heterogeneity, the ability to adapt to and survive environmental variation, and are self-sustaining in the natural environment.

The biological requirements for MCR steelhead include food (energy) source, flow regime, water quality, habitat structure, passage conditions (migratory access to and from potential spawning and rearing areas), and biotic interactions (Spence et al. 1996).

The NMFS has related the biological requirements for listed salmonids to a number of habitat

attributes, or pathways, in the Matrix of Pathways and Indicators (MPI). These pathways (Water Quality, Habitat Access, Habitat Elements, Channel Condition and Dynamics, Flow/Hydrology, Watershed Conditions, Disturbance History, and Riparian Reserves) indirectly measure the baseline biological health of listed salmon populations through the functional condition of their habitat. Specifically, each pathway is made up of a series of individual indicators (e.g. indicators for Water Quality include Temperature, Sediment, and Chemical Contamination) that are measured or described directly (see NMFS 1996). Based on measurement or description, each indicator is classified within a category of the properly functioning condition (PFC) framework: (1) properly functioning, (2) at risk, or (3) not properly functioning. Properly functioning condition is defined as "the sustained presence of natural habitat forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation."

2.1.2.2 Environmental Baseline

The environmental baseline represents the current basal set of conditions to which the effects of the proposed action would be added. The term "environmental baseline" means "the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process" (50 C.F.R. 402.02). The term "action area" means "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 C.F.R. 402.14(h)(2)). The aquatic "action area" includes Wide Hollow Creek and the surrounding riparian vegetation starting approximately 100 feet upstream from the edge of the bridge structure and continuing downstream approximately 1 mile.

Wide Hollow Creek is a right bank tributary to the lower Yakima River, entering at RM 107.4. The stream flows along the southern edge of Union Gap and Yakima. Wide Hollow Creek suffers many of the problems associated with urban streams, including stormwater runoff, leaking septics, and agricultural practices (mostly hay and pasture) (Haring 2001). Wide Hollow Creek supports spring chinook rearing, coho, and summer steelhead, as well as other resident salmonids and non-salmonids. Coho spawning has been observed (E.Anderson, pers. comm. 2002), and chinook use the lower portion of the creek for rearing (Haring 2001). The old mill dam at RM 0.6 has blocked upstream migration since 1869 (Brzoska pers. comm. 2002). Adult passage has been provided at the dam with installation of an Alaska steep-pass fishway, but juvenile salmon are not able to migrate upstream through the fishway.

Wide Hollow Creek flows through a developed/developing urban area, and the stream tends to be
incised. According to the report prepared for the Washington State Conservation Commission (Haring 2001) the channel upstream of the old mill dam barrier has been channelized and diked; habitat complexity is lacking. There is sporadic beaver activity, with beaver dams providing

some localized habitat complexity, although the beaver dams may also inhibit upstream fish passage.

Overgrazing has caused severe bank sloughing in several small reaches from RM 0.2-0.6. The reach from RM 1.3-2.5 also had significant impacts from past grazing, but land use through this reach has recently been converted to a business park. Pools and runs are fairly deep (>2 feet), and
are more frequent than riffles. Large woody debris (LWD) is generally lacking; although there is some LWD contribution from mature willows adjacent to the stream, the LWD is typically removed to minimize potential for bank erosion and channel rerouting in the tightly confined stream corridor.

Sedimentation and substrate are rated as fair (CBSP 1990). Good coho and steelhead rearing conditions exist in most reaches, but gravel is in short supply.

Riparian condition is generally poor, with riparian vegetation consisting of a narrow buffer with clumps of mature willow that provide shaded areas interspersed with sunny areas. Riparian vegetation is non-existent from RM 0.2-0.6 and from RM 1.3-2.5, where there are impacts from overgrazing. Land use in the reach from RM 1-3-2.5 has recently been converted to a business park, and riparian restoration is occurring as a component of the mitigation associated with the business park development (Haring 2001).

Water quality is rated as poor/fair, with impacts from leaking septics, stormwater runoff, and elevated pesticide concentrations from agricultural runoff and from urban runoff (Haring 2001). August 1988 stream temperatures were in the mid-60 ˚s F. Current water quality concerns are primarily associated with hobby farms and grazing near the creek. Wide Hollow Creek is on the Clean Water Act Section 303(d) impaired water quality list for water temperature, and a variety of pollutants (Snyder and Stanford 2001).

Instream flows during a 1988 habitat survey were considered excellent, ranging from 20-30 cfs in
the lower 4 miles, to 3-4 cfs near RM 14 (Haring 2001, Brzoska pers. comm. 2002). The USGS summarized flow related data for the period 1974-1981, as part of a statistical analysis of historic water quality for Wide Hollow Creek and other locations (USGS 1994, as cited in Tri-County 2000). Based on analysis of 74 measurements of Wide Hollow Creek flows, the median flow was estimated to be 25.0 cfs near the mouth. Monthly flow variations are presumed to be similar to those in Ahtanum Creek, although Wide Hollow Creek flows are affected to a greater degree during the irrigation season by operational spills from Yakima-Tieton Irrigation District. Water from Wide Hollow Creek is used for irrigation, domestic water supply, and stock water.

For aquatic species reviewed in this Opinion, habitats may be affected for approximately 1 mile (1.6 km) downstream in Wide Hollow Creek (RM 8.5 to 7.7). The project has the potential to contribute effects further downstream in the Yakima River. However, the distance to, and relative contribution of Wide Hollow Creek to the Yakima River makes it highly unlikely that

any measurable effect will occur. Information in the BA, obtained from WDFW and the Yakama Nation Fisheries Program, indicate that steelhead trout, coho, and spring chinook use Wide Hollow Creek.

A habitat survey was conducted for the stream segments upstream and downstream of the proposed bridge. Using the NMFS Matrix of Pathways and Indicators (MPI) (NMFS 1996), water quality, habitat elements, channel condition and dynamics, flow/hydrology and watershed conditions for both stream segments vary from functioning at risk to not properly functioning. For both stream segments, only habitat access and substrate were properly functioning.

Based on the best available information, NMFS concludes that not all of the biological requirements of MCR steelhead are being met under the environmental baseline in this watershed. The status of the species is such that there must be substantial improvement in environmental conditions to meet the requirements for long term survival and recovery of the species. Further degradation of these conditions could reduce the likelihood of survival and recovery of the species by increasing the risk they already face under the environmental baseline.

2.1.3 Effects of the Proposed Action

The proposed vegetation removal, bridge and road construction will cause the loss of approximately 85-90 bank feet of currently functional riparian vegetation, an adverse effect to MCR steelhead Designated Critical Habitat. NMFS' ESA implementing regulations define "effects of the action" as "the direct and indirect effects of an action on the species or critical habitat together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline" (50 C.F.R. 402.02). "Indirect effects" are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

2.1.3.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated (USFWS and NMFS 1998). Juvenile and adult steelhead may inhabit the action area during the proposed construction period. Generally, the direct effects are related to the extent and duration (maximum of 70 working days) of construction activities in or adjacent to Wide Hollow Creek. The negative effects associated with the proposed project are likely to be short in duration and will be minimized through restrictions in construction timing, the implementation of Temporary Erosion and Sediment Controls, and Best Management Practices outlined below. For these reasons, the proposed action is unlikely to influence the population growth trends described above.

2.1.3.1.1 Diversion of the Stream and Removal of Fish

The diversion of the stream during construction may result in the incidental stranding of juvenile steelhead. Additionally, the diversion of water in the channel will impede movement of steelhead, preventing access to the dewatered area.. The temporary channel bypass will also be large enough and fitted to ensure fish passage during construction. The effects associated with dewatering will also be minimized by timing. During the work window, adult steelhead migration and spawning has been completed and outmigrating smolts are expected to have emigrated. Juvenile fish may still be in the action area.

A WDFW biologist or other trained fish biologist will use dip nets, seine nets, or minnow traps to capture fish in the dewatered area and release them immediately into a free-flowing portion of the creek. This handling has been shown to increase plasma levels of cortisol and glucose in fish (Moyle and Cech, Jr. 1988). The likelihood of injury or mortality will be reduced by using a qualified fish biologist that ensures the safe capture, handling and release of fish.

2.1.3.1.2 Turbidity

Removal of the existing riparian vegetation, and installation of LWD into the bankfull channel, and other activities associated with this project will result in mobilization of sediments and temporarily increasing downstream turbidity levels. Specifically during the tree removal and placement of LWD, the level of turbidity will likely exceed ambient levels for a short period and potentially affect MCR steelhead.

In most streams, there are periods when the water is relatively turbid and contains variable amounts of suspended sediments. Short term negative effects include deposition of fine sediment that can degrade instream spawning habitat and reduce survival of steelhead from egg to emergence, physiological stress and reduced growth, reduced foraging success and gill irritation. Larger juvenile and adult salmon and trout appear to be little affected by ephemerally high concentrations of suspended sediments that occur during most storms and episodes of snowmelt (Bjorn and Reiser 1991). For some juvenile salmonids, turbidity has been linked to a number of behavioral and physiological responses (e.g., gill flaring, coughing, avoidance, increase in blood sugar levels) which indicate some level of stress (Bisson and Bilby 1982, Sigler et al. 1984, Berg and Northcote 1985). The magnitude of the stress responses is generally higher when turbidity is increased and particle size is decreased (Bisson and Bilby 1982, Gregory and Northcote 1993). Although turbidity may cause stress, Gregory and Northcote (1993) have shown that moderate levels of turbidity accelerate foraging rates among juvenile chinook salmon, likely because of reduced vulnerability to predators because of camouflaging.

When the particles causing turbidity settle out of the water column, they contribute to sediment on the riverbed (sedimentation). When sedimentation occurs, salmonids may be negatively impacted in the following ways: (1) salmonid eggs may be buried and suffocated, (2) prey habitat may be displaced, and (3) future spawning habitat may be displaced (Spence et al. 1996).

The proposed project would cause elevated turbidity levels during the removal of the existing trees and placement of LWD in the stream channel during the construction period and for several days afterwards. However, the effects of this turbidity on MCR steelhead would be minimized by working within the area that is isolated from streamflow as previously described. The additional construction activities are likely to cause an increase in dust in the area. The use of water for dust control, hydroseeding, timing of construction activities to occur during expected dry months and Best Management Practices (BMPs) in the BA and the Terms and Conditions in section 2.2.3 of this Opinion should minimize the deleterious effects of sedimentation and turbidity. It is also expected that MCR steelhead present during the initial phases of construction would temporarily move to refuges where turbidity can be avoided, thus preventing adverse effects. Additionally, the project work window will capitalize on a time of year when neither spawning fish nor redds are present.

NMFS expects the that turbidity and sedimentation caused by this action would be short lived, returning to baseline levels soon after construction is over. Furthermore, NMFS expects that long term impacts (i.e., destruction or adverse modification of critical habitat) will not occur. Other than the short term impacts mentioned above, this project will not change or add to existing baseline turbidity or sedimentation levels within Wide Hollow Creek.

2.1.3.1.3 Streambed and Bank Disturbance

The removal of existing vegetation in and along the streambanks will result in several feet of bank disturbance. The primary mechanism of disturbance would be the removal of the existing trees from the channel and streambanks. During the removal of the trees, the stream flow will be restricted to a bypass channel to prevent direct contact with the disturbed areas. By pushing the trees that are on the bank away from the channel, disturbance will be reduced. After removal of the trees, rocks and cobble size material currently on the floodplain will be introduced into the disturbed areas to provide some protection when the flow is reintroduced. The rocks and cobbles will not be used as bank hardening or permanent protection, their purpose is to cushion the initial impact of the streamflow on the disturbed areas while allowing the stream to reestablish its channel. The direct effect to MCR steelhead is expected to be minor. MCR steelhead lifestages present in the action area including juvenile and young-of-the-year fish, will have been removed from the immediate vicinity when the stream bypass is constructed.

2.1.3.2 Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects may include the effects of other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or they are a logical extension of the proposed action.

2.1.3.2.1 Riparian and Fisheries Habitat

The removal of riparian vegetation, including 15 trees, reduces the potential contribution of the area to functional riparian habitat. The existing riparian vegetation is predominantly a non-native species of willow. The trees are mature (1-2 feet in diameter) and are in a single row on each side of the creek with little understory.

Riparian vegetation has many influences on the stream ecosystem. In addition to contributing leaf detritus, riparian vegetation produces insects that fall into the stream and supplement the salmonid diet. Riparian vegetation also contributes logs and branches that shape channel morphology, retain organic matter, and provide essential cover for salmonids. Tree roots stabilize stream banks and maintain undercut banks that offer prime salmonid habitat. Riparian vegetation forms a protective canopy, particularly over small streams, that helps maintain cool stream temperature in summer and insulate the stream from heat loss in winter.

Shaded streamside areas are preferred habitats of juvenile salmonids. The single row of trees removed will be replaced with riparian plantings of a native species known to grow large in height and girth, such as cottonwood. The number of trees to be planted will exceed the number of trees removed by at least 300% to allow for natural mortality until maturity without overall loss of function. These plantings will be in close proximity to the bridge site and will eventually cover a greater area than the current vegetation and will increase the overall recruitment potential of the site. Additionally, a minimum of three rootwads will be added to the stream channel, which is currently lacking any LWD in the action area. Therefore, loss of riparian function is a temporal loss as proposed revegetation plans will increase overall tree density and the amount of linear streambank with riparian vegetation. The addition of at least 3 LWD pieces into the stream channel will also greatly improve the habitat during the establishment of riparian plantings. The long-term effect relative to baseline riparian conditions will be an improvement.

2.1.3.2.2 Increased Impervious Surface

Approximately 5.91 acres of new impervious surface will be created as a result of the widening and new road construction. As urbanization progresses and the population grows, trees are logged and land is cleared for the addition of impervious surfaces such as rooftops, roads, parking lots, and sidewalks. Maintained landscapes that have much higher runoff characteristics typically replace the natural vegetation. The natural soil structure is also lost due to grading and compaction during construction. Roads are cut through slopes and low spots are filled. Drainage patterns are irrevocably altered. All of this results in changes in the natural hydrology, including:

- Increased volume of runoff (both instantaneous and cumulative),
- Decreased time for runoff to reach a natural receiving water,
- Reduced ground water recharge,
- Increased frequency and duration of high stream flows and wetland inundation during and after wet weather, and
- Reduced stream flows and wetland water levels during the dry season.

As a consequence of these hydrology changes, stream channels are eroded by high flows and

can lose summertime base flows. Increased flooding occurs. Streams lose their hydraulic complexity. Habitat is degraded and receiving water species composition is altered (WADOE 2001).

To respond to these impacts surface runoff from the new structure and pavement will be collected and conveyed via swales which also serve as detention ponds. Infiltration of runoff into the soil of dry vegetated swales has been shown to be effective in facilitating groundwater recharge and removal of sediment and various chemicals (Schueller and Holland 2000a, b, c). Yakima County will install nylon reinforced straw fabric in the swale/pond area to provide protection of the exposed ground surface until seeding becomes established. Rock check dams will be constructed in the swale to slow water movement, increase contaminant removal, improve water quality and maximize infiltration.

2.1.3.2.3 Construction Equipment

As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. These contaminants could injure or kill aquatic organisms if spilled in a water body or the adjacent riparian zone. However, all equipment fueling and maintenance will occur in designated staging areas at least 50 meters from the stream channel. This management practice will ensure that construction related pollutants do not reach the stream.

2.1.3.3 Effects on Critical Habitat

NMFS designates critical habitat for a listed species based upon physical and biological features that are essential to that species. Essential features of this critical habitat include substrate, water quality/quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, and safe passage conditions. (65 Fed. Reg. 7764; Feb. 16, 2000). These requirements have been related to pathways and indicators within the MPI.

The direct and indirect effects discussed previously identify that the proposed action would modify critical habitat for MCR steelhead to a small degree. The avenues in which critical habitat may be affected are disclosed in the MPI analysis of the BA; specifically, in the Water Quality, Habitat Elements, and Watershed Condition pathways. Within these pathways, the functional quality of most indicators will be maintained. The exceptions are the temporary effects of turbidity which will briefly degrade the Sediment/Turbidity indicator (Water Quality Pathway), a short term loss of vegetative cover followed by a long term increase in the amount of riparian vegetation, large woody debris in the stream channel and recruitment potential, improved pool frequency and quality (Habitat Elements), an improvement in riparian reserves and an overall increase in impervious surface area (Watershed Condition). Relating these indicators back to essential habitat elements, the primary impact of this action will be a temporary decline in water quality and riparian vegetation, and an overall long term improvement in habitat complexity and cover/shelter.

2.1.4 Cumulative Effects

Cumulative effects are defined as "those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 C.F.R. 402.2). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

NMFS is not aware of any specific future non-Federal activities with the action area that would cause greater effects to listed species than presently occur. NMFS assumes that future private and state actions will continue at similar intensities as in recent years. As the human population in the state continues to grow, demand for actions similar to the proposed project likely will continue to increase as well. Each subsequent action by itself may have only a small incremental effect, but taken together they may have a significant effect that would further degrade the watersheds environmental baseline and undermine the improvements in habitat conditions necessary for listed species to survive and recover.

2.1.5 Conclusion

NMFS has reviewed the direct, indirect, and cumulative effects of the proposed action on MCR steelhead. NMFS also reviewed the effects of the proposed action on designated critical habitat. NMFS analyzed the proposed action and found that it would cause minor, short-term adverse effects to salmonid habitats because of in-water work and riparian vegetation removal. Direct mortality from this project is possible but will be limited in duration to the in-water work window of 2003. The proposed action is expected to restore/improve stream habitat conditions within the action area. Consequently, the proposed action covered in this Opinion is not likely to jeopardize the continued existence of MCR steelhead nor would the proposed project result in the destruction or adverse modification of designated critical habitat.

2.1.6 Reinitiation of Consultation

This concludes formal consultation for the South 96th Tieton Drive to Zier Road Widening and Reconstruction.. Consultation must be reinitiated if: (1) the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16). To reinitiate consultation, the FHWA should contact the Habitat Conservation Division (Washington Branch Office) of NMFS.

2.2 Incidental Take Statement

Section 9 of the ESA prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Section 4(d) enables the extension of this prohibition to animals listed as

"Threatened" under the ESA. Harm in the definition of "take" in the Act means an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kill or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering (50 C.F.R. 222.102). "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action, is not considered prohibited taking provided that such takings is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary; in order for the exemption in section 7(o)(2) to apply, they must be implemented by the action agency so that they become binding conditions of any grant or permit issued to the applicant as appropriate. The FHWA has a continuing duty to regulate the activity covered in this incidental take statement. If the FHWA fails to retain the oversight to ensure compliance with the terms and conditions, the protective coverage of section 7(o)(2) may lapse.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize the impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NMFS anticipates that incidental take of MCR steelhead is reasonably certain to occur as a result of project activities. Despite the use of the best scientific and commercial data available, NMFS cannot estimate a specific amount of incidental take of individual fish. However, NMFS believes that there are several mechanisms through which take of MCR steelhead may occur and the extent to which these mechanisms will occur is described in the Opinion. Direct harm or injury may result from installation and construction activities (e.g., sediment mobilization, juvenile stranding). Indirect harm, through long term habitat modification could occur if the impact minimizing measures are disregarded.

2.2.2 Reasonable and Prudent Measures

The following reasonable and prudent measures (RPM's) are necessary and appropriate to minimize take of MCR steelhead. These RPM's are partially integrated into the BA and proposed project. NMFS has included them here to provide further detail as to their implementation.

1. To minimize the amount and extent of incidental take from construction activities during the Wide Hollow Bridge construction, measures shall be taken to limit the duration and extent of in-water work and to time such work that the impacts to MCR steelhead are minimized.

2. To minimize the amount and extent of incidental take from construction activities in or near the creek, a Temporary Erosion and Sediment Controls plan and a spill prevention plan will be signed prior to initiation of activities and fully implemented throughout the area of disturbance and for the life of the project. The measures shall include the use of silt fences, straw bales and other sediment filtration devices to minimize the movement of soils and sediment both into and within the creek, and stabilize bare soil over both the short term and long term.

3. To minimize the amount and extent of take from loss of instream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream function.

4. To ensure effectiveness, swales, dry wells, and the retention/detention pond will be routinely maintained between and during major storms to enable the maximum retention capacities and plantings for site restoration shall be monitored and evaluated both during and following construction and meet criteria as described below in the terms and conditions.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the RPM's described above. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to fish and Wide Hollow Creek critical habitat. These terms and conditions are non-discretionary.

1. To implement RPM No. 1 (in-water work) above, the FHWA shall ensure that:

1.1 Passage shall be provided for both adult and juvenile forms of MCR steelhead throughout the construction period.

1.2 All work within the active channel of Wide Hollow Creek will be completed between July 15 and September 30. Staging plans for temporary waterway diversions will be submitted and approved by FHWA Environmental Staff prior to proceeding with associated in-water activities. Any additional extensions of the in-water work period will first be approved by, and coordinated with, NMFS and WDFW.

1.3 All in-water work will be done within a cofferdam (sand bags), or the stream shall be routed through a culvert, to minimize the potential for sediment entrainment. If a coffer dam is used, any fish trapped in the isolation pool will be removed prior to dewatering, using NMFS approved methods.

1.4 Fish will be captured by seineing under the supervision of a fishery biologist experienced in such efforts and all staff working with the seineing operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish. ESA-listed fish must be handled with extreme care and kept in water to the

maximum extent possible during capture and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer. No fin clipping or use of anaesthetics is authorized for MCR steelhead. Captured fish must be released in appropriate habitat, as near as possible but upstream of the capture site.

1.5 Within three months of any fish removal activities, the FHWA shall provide a report to NMFS that contains all of the information for reporting take that is contained in the 2001 Washington Department of Fish and Wildlife Scientific Taking Permit application.

1.6 Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration.

1.7 During excavation, native streambed materials will be stockpiled out of the two-year floodplain for later use in backfilling the trenches used to construct the coffer dams.

1.8 Any water diversions or withdrawals done for the purpose of supplying water for construction or for riparian plantings will comply with all state and federal laws, particularly those that require a temporary water right and fish screening of intakes. The FHWA shall be responsible for informing all contractors of their obligations to comply with existing, applicable statutes.

1.9 The county shall place no fewer that 3 boles with root-wads in the stream channel above the bridge. Using the largest portion of each tree with roots attached is necessary for increased longevity in the channel rather than requiring anchoring mechanisms, thus enabling the stream to manipulate the position and distribution of the logs naturally. Placement of the logs will adhere to the subjects and conditions of the HPA and the following:

1.9.1 The operation machinery will not position its tracks or wheels within the ordinary high water mark.

1.9.2 Logs will be set into position slowly to enable any fish in the area to maneuver and avoid being crushed.

1.9.3 Logs will be set slowly and with minimal lateral movement to avoid excess bank disturbance that will mobilize stored fine sediment.

2. To implement RPM No. 2 (construction activities), the FHWA shall ensure that all erosion and pollution control measures included in the BA are included as special provisions in the South 96th Avenue from Tieton Drive To Zier Road contract. NMFS requires the FHWA to pay particular attention to preparation of an erosion control plan (ECP) as follows: An ECP will be prepared by the FHWA or the Contractor, and implemented by the Contractor. The ECP will

outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The ECP shall be maintained on site and shall be available for review upon request.

2.1 Effective erosion control measures shall be in-place at all times during the contract. Construction within the project vicinity will not begin until all temporary erosion controls (e.g., sediment barriers and containment curtains) are in place. Erosion control structures will be maintained throughout the life of the contract.

2.2 All exposed areas will be replanted with a native seed mix. Erosion control planting will be completed on all areas of bare soil within 14 days of completion of construction.

2.3 All equipment that is used for instream work will be cleaned prior to entering the two year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.

2.4 Material removed during excavation shall only be placed in locations upland, at least 50 feet from the two year floodplain, where it cannot enter the permitted work area or any other waters of the state of Washington. Conservation of topsoil (removal, storage and reuse) will be employed.

2.5 Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

2.6 Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D).

2.7 The Contractor will develop an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicant released. The Contractor will be monitored by the FHWA to ensure compliance with this PCP. The PCP shall include the following:

2.7.1 A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pit operations, haul roads, equipment storage sites, fueling operations, and staging areas.

2.7.2 Methods for confining and removing and disposing of excess construction materials, and measures for equipment washout facilities.

2.7.3 A spill containment and control plan that includes: Notification procedures; specific containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.

2.7.4 Measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project, including the following: Types of materials, estimated quantity, storage methods, and disposal methods.

2.7.5 The person identified as the Erosion and Pollutant Control Manager shall also be responsible for the management of the contractor's PCP.

2.8. Areas for fuel storage, refueling, and servicing of construction equipment and vehicles will be at least 50 meters from the stream channel and all machinery fueling and maintenance will occur within a contained area. Overnight storage of vehicles and equipment must also occur in designated staging areas. Equipment refueling and storage areas will have hydrologic function restored (e.g., ripping or subsoiling) in areas in where it has been degraded.

2.9 No surface application of nitrogen fertilizer will be used within 50 feet of any aquatic resource.

3. To implement RPM No. 3 (riparian habitat protection), the FHWA shall ensure that:

3.1 Alteration of native vegetation will be minimized. Where native vegetation will be altered, take measures to ensure that roots are left intact. This will reduce erosion while still allowing room to work. No protection will be made of invasive exotic species (e.g. Himalayan blackberry), although no chemical treatment of invasive species will be used.

3.2 Riparian vegetation removed will be replaced with a native seed mix, shrubs, and trees. Tree replacement will consist of a native species known to grow relatively large in height and girth, such as cottonwood, compared with other local species. Replacement will occur within the project vicinity.

4. To implement RPM No. 4 (monitoring), the FHWA shall ensure that:

4.1 Erosion control measures as described above in RPM 2.2.2.2 shall be monitored.

4.2 All significant riparian plantings will be monitored to ensure that finished grade slopes are at stable angles of repose. The number of trees to be planted will exceed the number of trees removed by at least 300% to allow for natural mortality until maturity.

4.3 Failed plantings and structures will be replaced, if replacement would potentially succeed. If not, plantings at other appropriate locations will be done.

4.4 By December 31 of the year following the completion of construction, the FHWA shall submit to NMFS (Washington Branch) a monitoring report with the results of the monitoring required in the terms and conditions stated above.

3.0 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance Essential Fish Habitat for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2));
- NMFS must provide conservation recommendations for any Federal or State action that would adversely affect EFH (§305(b)(4)(A));
- Federal agencies must provide a detailed response in writing to NMFS within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NMFS EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NMFS is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of federally-managed Pacific salmon: chinook; coho; and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

3.3 Proposed Actions

The proposed action and action area are detailed above in Section 1.2 and 1.3 of this Biological Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of chinook and coho salmon.

3.4 Effects of Proposed Action

As described in detail in Section 2.1.4 of this Opinion, the proposed action may result in short- and long-term adverse effects to a variety of habitat parameters. These adverse effects include sediment mobilization, increased turbidity, and disturbance to riparian vegetation.

3.5 Conclusion

NMFS concludes that the proposed action would adversely affect designated EFH for chinook and coho salmon.

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NMFS is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NMFS understands that the conservation measures described in the BA will be implemented by the FHWA, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the Terms and Conditions outlined in Section 2.2.3 are generally applicable to designated EFH for chinook and coho salmon, and address these adverse effects. Consequently, NMFS recommends that they be adopted as EFH conservation measures.

3.7 Statutory Response Requirement

Since NMFS is not providing conservation recommendations at this time, no 30-day response form the FHWA is required (MSA §305(b)(4)(B)).

3.8 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920(k)).

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